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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,245	09/28/2005	Claus Breuer	710270-022	1883

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DICKINSON WRIGHT PLLC
38525 WOODWARD AVENUE
SUITE 2000
BLOOMFIELD HILLS, MI 48304-2970

EXAMINER	
LEE, GILBERT Y	
ART UNIT	**PAPER NUMBER**
3673	

NOTIFICATION DATE	DELIVERY MODE
09/27/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

nthurman@dickinsonwright.com

Office Action Summary	Application No.	Applicant(s)	
	10/551,245	BREUER ET AL.	
	Examiner	Art Unit	
	Gilbert Y. Lee	3673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 July 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *8-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *8-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 September 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/17/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed 7/17/07 has been filed.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 8-13 rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. What the "constant twist angle" is being referenced to in claims 8 and 9, critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). Claims 8 and 9 definitely claim a "constant twist angle". However, the specification, drawings and claims do not disclose what the twist angle is in relation to or how it is achieved.

Specification

3. The amendment filed 7/17/07 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the angle φ added into Fig. 5 presents new matter because it was never disclosed in the specification as to

where the angle φ was in reference to. The amendment to Fig. 6 is also considered new matter because the specification only discloses that the twist angle "takes on varying twist angles moving back to the rear of the ring".

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 8-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinsley et al. (US Patent No. 1,645,146) in view of SU Patent No 504906 (herein '906).

Regarding claim 8 ,the Kinsley reference discloses, as best understood, a piston ring (1) having a gap (3), a friction surface (e.g. right surface of element 2 in Fig. 4), an inner surface (e.g. left surface of element 1 in Fig. 4) and upper (e.g. top flank of element 1 in Fig. 4) and lower (e.g. bottom flank of element 1) flanks;

said piston ring having a radial wall thickness that varies (Fig. 1), where in the area of the gap the wall thickness is smaller than the area diametrically opposite from the gap.

However, the Kinsley reference, fails to explicitly disclose a non-constant cross-section cut being wider in the area of the gap as compared to an area diametrically

opposed from the gap and wherein the relationship between the wall thickness and the cross-section cut is continually so formed that he piston ring, viewed in the circumferential direction presents a constant twist angle.

The '906 reference, a seal ring, discloses a non-constant cross-section cut being wider in the area of the gap as compared to an area diametrically opposed from the gap (Fig. 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a non-constant cross-section cut being wider in the area of the gap as compared to an area diametrically opposed from the gap to the Kinsley et al. reference in view of the '906 reference in order to control the elastic deformation of the seal ring. Note that because the modified Kinsley reference discloses the structure of the claimed invention, the modified Kinsley reference will present a constant twist angle.

Regarding claim 9, the Kinsley reference, as modified in claim 8 and as best understood, discloses the piston ring. Note that because the modified Kinsley reference discloses the structure of the claimed invention, the modified Kinsley reference will have all of the variables listed in the equation of claim 9.

Regarding claim 10, the Kinsley reference, as modified in claim 8, discloses the cross-section cut being formed by a bevel ('906, Fig. 1).

Regarding claim 11, the Kinsley reference, as modified in claim 10, discloses the bevel having an angle that varies in the circumferential direction ('906, Fig. 1).

Regarding claim 13, the Kinsley reference, as modified in claim 10, discloses the cut being formed by means of an angular exclusion (Kinsley, Fig. 1).

5. Claims 8-10, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinsley et al. (US Patent No. 1,645,146) in view of Colvin (US Patent No. 2,591,920).

Regarding claim 8, the Kinsley reference discloses, as best understood, a piston ring (1) having a gap (3), a friction surface (e.g. right surface of element 2 in Fig. 4), an inner surface (e.g. left surface of element 1 in Fig. 4) and upper (e.g. top flank of element 1 in Fig. 4) and lower (e.g. bottom flank of element 1) flanks;

said piston ring having a radial wall thickness that varies (Fig. 1), where in the area of the gap the wall thickness is smaller than the area diametrically opposite from the gap.

However, the Kinsley reference, fails to explicitly disclose a non-constant cross-section cut being wider in the area of the gap as compared to an area diametrically opposed from the gap and wherein the relationship between the wall thickness and the cross-section cut is continually so formed that he piston ring, viewed in the circumferential direction presents a constant twist angle.

The Colvin reference, a piston ring, discloses a non-constant cross-section cut (21) being wider in the area of the gap as compared to an area diametrically opposed from the gap (Fig. 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a non-constant cross-section cut being wider in the area of the gap as compared to an area diametrically opposed from the gap to the Kinsley et al.

reference in view of the Colvin reference in order to control the elastic deformation of the seal ring (Colvin, Col. 3, Line 25-51). Note that because the modified Kinsley reference discloses the structure of the claimed invention, the modified Kinsley reference will present a constant twist angle.

Regarding claim 9, the Kinsley reference, as modified in claim 8 and as best understood, discloses the piston ring. Note that because the modified Kinsley reference discloses the structure of the claimed invention, the modified Kinsley reference will have all of the variables listed in the equation of claim 9.

Regarding claim 10, the Kinsley reference, as modified in claim 8, discloses the cross-section cut being formed by a bevel (Colvin, Fig. 3).

Regarding claim 12, the Kinsley reference, as modified in claim 10, discloses the bevel having an angle that is constant in the circumferential direction (Colvin, Figs. 1 and 3).

Regarding claim 13, the Kinsley reference, as modified in claim 10, discloses the cut being formed by means of an angular exclusion (Kinsley, Fig. 1).

Response to Arguments

6. Applicant's arguments filed 7/17/07 have been fully considered but they are not persuasive.

With regards to the applicant's argument of the Kinsley et al. reference in view of the '906 reference, the argument is not persuasive because, although, the Kinsley reference is formed of two rings, the '906 reference teaches the addition of a "scarf cut"

to the inner diameter of a **split ring**. Furthermore, the motivation the examiner stated in the previous office action, is further evidenced in the translation provided on page 2, lines 10-12.

The applicant further argues that neither reference discloses a twist angle. The applicant is directed to page 2 of the enclosed translations of the '906 reference, which discloses the addition of the "scarf cut" to assure uniform twisting.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gilbert Y. Lee whose telephone number is 571-272-5894. The examiner can normally be reached on 8:00 - 4:30, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patricia L. Engle can be reached on (571)272-6660. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GL
September 18, 2007

Patricia Engle
Supervisory Examiner
Tech. Center 3600